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CURRENT LITERATURE

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Vol. 3, No. 12. WASHINGTON, D. C. July, 1934.

Correction

Erosion Control.

Control of soil erosion by terracing. By C. E. Ramser. Agricultural Engineering. v. 15, no. 5. May, 1934. p. 164-166. Terraces conserve soil; Economy to terrace land; Soil losses increase with grade; Superiority of variable graded terrace; Short terraces preferable; How spacing affects losses; Level terraces not generally satisfactory; Terracing steep slopes.

Soils.

Soil crusts. By A. Carnes. Agricultural Engineering. v. 15, no. 5. May, 1934. p.167-169, 171. Methods of study, their strength, and method of overcoming their injury to cotton stand. Factors affecting crust formation may be summarized in following manner: 1. Amount of crust formed on given soil varies with amount of rain. 2. Rate of drying affects breaking strength of crust. Slow rate of drying produces crust slightly harder to break. 3. Breaking strength of crust, formed under given condition, was found to bear inverse relationship, within range studied, to amount of moisture in crust at time of breaking. 4. Chemical nature of soil affects breaking strength of crust. 5. Modulus of rupture of crust of soils studied is greater in cotton middles than on ridges.

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Accidents.

Farm accidents and their prevention. By Earle G. Brown. Kansas State Board of Agriculture. Report ending March 1934. p. 104-114.

Agriculture.

Computation of acreage under production-control contracts. By S.P. Lyle. Washington, D. C. 1934. 14p. U.S. Department of Agriculture. Agricultural Adjustment Administration.

Farm buying power is making strong come back. Implement and Tractor Trade Journal. v. 49, no. 12. June 16, 1934. p. 8-9, 21. AAA funds help but normal operation of farms is doing much more in improving farm economics.

Measurement of fields under production-control contracts. 1934. 6p. U. S. Department of Agriculture. Agricultural Adjustment Administration.

Agriculture. (Cont'd)

One year of the AAA; the record reviewed. By Chester C. Davis. 1934. 8p. U. S. Department of Agriculture. Agricultural Adjustment Administration.

Purpose and use of contracted acres under corn and wheat adjustment programs. By J. A. Slipher and R. D. Lewis. 1934. 4p. Ohio State University. Agricultural Extension Service. Bulletin no. 150.

Yearbook of agriculture, 1934. Washington, U. S. Government Printing Office, 1934. 783p.

Air Conditioning.

Air conditioning as a relief for hay fever. By Walter H. Steitler. Refrigeration. v.55, no.6. June, 1934. p.14-16.

Bibliography of information on air conditioning. 1934. 45p. Mimeographed. U. S. Bureau of Foreign and Domestic Commerce.

Complete residential cooling with gas for 16 cents an hour. By Eugene D. Milener. Heating and Ventilating. v. 31, no. 6. June, 1934. p. 60-61.

Dry bulb vs. effective temperature control. By A. E. Beals. Heating, Piping and Air Conditioning. v. 6, no. 7. July, 1934. p. 315-318.

Electric cooling to be tested in research house. By John T. Schaefer. Electric Refrigeration News. v. 12, no. 8. June 20, 1934. p. 1, 10. Illinois professors report air-conditioning tests at Urbana, Ill.

Home of controlled climate. By Richard W. Mecaskey. Architectural Forum. v. 60, no. 1. January, 1934. p. 33-48.

Low-cost summer cooling. By Don Luty. Fuel Oil. v. 13, no. 1. July, 1934. p. 16, 51.

Alcohol.

Alcohol-gasoline blends. Dakota Farmer. v. 54, no. 10. May 12, 1934. p. 221. Results of many tests.

Associations.

Farm equipment institute convention date set. Implement Record. v. 31, no. 7. July, 1934. p. 22. Week of October 8 at Chicago.

Building Construction.

Government sponsors mortgage insurance to break building jam. By J. C. Clifford. Magazine of Wall Street. v. 54, no. 4. June 9, 1934. p. 180-182, 217-218.

How to estimate millwork. By F. W. DeBoice. American Lumberman. no. 3024. June 23, 1934. p. 32-33. Storm sash. Storm entrance.

Building Construction. (Cont'd)

Variations in size of building brick. Engineering News-Record. v. 112, no. 24. June 14, 1934. p. 776. Measurements of 600 samples of building brick from manufacturers all over country showed that only 210 complied with three-dimension standard specifications for building brick of American Society for Testing Materials. Survey was made by J. W. McBurney, Bureau of Standards, to determine variation in size and weight of building brick to supplement study on strength, water absorption and weathering resistance. From data obtained following conclusions are considered justified: 1. "Average" brick produced in United States has following size and weight: length 8.04 inches, breadth 3.66 inches, depth 2.27 inches, volume 66.80 cubic inches, and weight 4.54 pounds. 2. Some producing districts of United States characteristically manufacture non-standard sizes. 3. Where raw clay or shale is formed to particular size degree of variation in size may be very considerable, depending upon nature of clay or shale, and upon drying and burning practice.

Cold Storage.

Cold facts about profitable cold storage on the fruit farm. By Dean Halliday. American Fruit Grower. v. 54, no. 6. June, 1934. p. 7, 16. Completes annual costs, but does not include all factors.

Conservation.

Huge water conservation project. California Cultivator. v. 81, no. 12. June 5, 1934. p. 319. Of chief concern to California is statement that program includes our central valley water project at estimated cost of $166,925,000; Colorado river lower basin project, to cost $553,000,000; Los Angeles flood control project, $77,152,000, and Santa Ana river basin project $14,455,500.

Corrosion.

Corrosion of brass in water subjected to pH correction. By Edward W. Moore. Journal of New England Water Works Association. v. 48, no. 1. March, 1934. p. 47-58.

Effect of impurities on the surface tension of type-metal alloys. By H. Vance White. 1934. 51p. Virginia Engineering Experiment Station. Bulletin no. 17.

Pipe corrosion problem unsolved, A.S.T.M. is told. National Petroleum News. v. 26, no. 26. June 27, 1934. p. 28. Cannot be solved until numerical values are assigned for life of unprotected pipe and for life extension to be expected as result of use of protective coatings.

Some factors involved in soil corrosion. By E. H. Shepard. Industrial and Engineering Chemistry. v. 26, no. 7. July, 1934. p. 723-732. Laboratory experiments on causes and mechanism of soil corrosion of ferrous materials are described. An unbroken mill scale has protective influence, while discontinuous mill scale may facilitate pitting. Presence and distribution of oxygen in soil is important factor in soil corrosion. Unequal distribution of oxygen occurs in dry or porous soils where nonuniform condition of soil aggregate exists. Such conditions give rise to local galvanic action on buried iron pipes. In most soils maximum rate of corrosion occurs when soil is moist rather than wet or

Corrosion. (Cont'd)

saturated. This is because of limited supply of oxygen in saturated soils. Electrical resistivity of soil is important factor in corrosion but other less definite properties are often controlling ones.

Cotton and Cotton Ginning.

Cotton production and distribution season of 1932-33. Washington. U.S. Government Printing Office, 1934. 36p. U.S. Bureau of the Census Bulletin no. 170.

Dairy Farm Equipment.

Dairy barn construction. By Wellesley C. Harrington and Miner J. Markuson. 1934. 16p. Massachusetts State College. Extension Service Extension Leaflet no. 111.

New type milk cooler. New England Homestead. v. 107, no. 10. May 12, 1934. p. 13. Will reduce temperature of milk from body heat to 50 degrees in approximately one hour, cooling it directly in cans without use of aerator. Milk cans are placed in cooler after milking at night and time switch turned on which controls motor to agitate water continually by pumping it from secondary tank into main tank, from which it flows back again into second tank. Refrigerating coils are placed around tank. At top of tank these coils are close together, so that ice will freeze around them, building up natural state of refrigeration to keep water cold and conserve current. Temperature of water is kept constant by means of thermostat, which starts and stops refrigerating compressor. Unique feature of this cooler is fact that water level remains constant while water is being agitated. If extra can is added, water overflows into secondary tank. If cans are removed the pump which operates continually as long as time switch is set, fills main tank rapidly, thus keeping water up around necks of cans at all times.

Dams.

Mir Alum dam. By Charles W. Comstock. Military Engineer. v. 26, no. 148. July-August, 1934. p. 254-257.

Norris dam design modified to meet new requirements. Engineering News-Record. v. 113, no. 2. July 12, 1934. p. 44-45. Navigation features entirely eliminated, spillway changed as to character and location, and power plant reduced in size. Elevation of spillway crest lowered.

Drainage.

Spacing and depth of tile drains. By J. H. Neal. Agricultural Engineering. v. 15, no. 6. June, 1934. p. 194-197. Table 1. Run-off from drainage areas. Table 2. Average rate of drop of ground water at mid-point between tile lines.

Vertical drainage. Monthly Bulletin of Agricultural Science and Practice. v. 25, no. 4. April, 1934. p. 186. Term vertical drainage or Dutch drainage is applied to method of drainage by drawing off stagnant surface water into permeable strata of sub-soil by means of blind wells in combination with drilled wells.

Electric Service, Rural.

5,000 Kw.-Hr. per rural customer. By P. H. Powers. Electrical World. v. 103, no. 23. June 9, 1934. p. 843-845. Necessary to confine attention to existing customer, educate customer in uses and values of services, cooperate with dealers, remember that farm market is but half of rural market, and adopt customer's point of view.

Progress of electrification in midland rural area. Rural Electrification and Electro-Farming. v. 9, no. 108. May, 1934. p. 367-374. Work of Northampton Electric Light and Power Company, Limited.

T.V.A. opens rural power program. Electrical World. v. 103, no. 23. June 9, 1934. p.853. Marked by signing of first contract between Tennessee Valley Authority and a country power association, activities of T.V.A. and Electric Home and Farm Authority concentrated in past week in Mississippi, Alabama and Tennessee.

Electric Wiring.

To lower range wiring costs. By E. A. Heath. Electrical World. v. 103, no. 24. June 16, 1934. p. 870-871. Simplify the job, make as much of the installation as possible a part of utility system, help to develop new equipment and work toward code revision.

Electricity in the Home.

Electric equipment in the farm home. By Gail M. Redfield. American Society of Agricultural Engineers, 1934. 18p. Mimeographed.

Electricity in the home. By Henry L. Logan. Architectural Record. v. 75, no. 5. May, 1934. p. 448-457.

Electricity on the Farm.

All-electric poultry farm. Rural Electrification and Electro-Farming. v. 9, no. 108. May, 1934. p. 362-363. Interesting account of modern electric poultry farm for raising day-old chicks and eggs for commercial purposes.

Filling the silo the modern way. By T. E. Hienton. Electricity on the Farm. v. 7, no. 7. July, 1934. p. 4-6. Table of cutter speeds for most efficient operation for different sized elevating fans and for silos of different heights.

Practical use for electricity. Wisconsin Agriculturist and Farmer. v. 61, no. 9. May 12, 1934. p. 7.

Engineering.

Training civil engineers to meet modern demands. By Thorndike Saville. Engineering News-Record. v. 112, no. 25. June 21, 1934. p. 802-804. Increasing need for civil engineers in public service makes desirable reorientation of training of civil engineers. Unification of construction industry under its code offers profession new possibilities for service.

Erosion Control.

Farms that go to sea. Prairie Farmer. v. 106, no. 14. July 7, 1934. p. 2. Erosion control demonstration stops soil loss.

Great dust storm formed from Corn Belt top-soil. Science News Letter. v. 25, no. 684. May 19, 1934. p. 307. Wind erosion almost as harmful as water-erosion to land.

Keep erosion from stealing soil. By A. H. Gerbaz. Western Farm Life. v. 36, no. 5. May 15, 1934. p. 10. Use care in handling irrigation water on steep hillsides.

Run-off and erosion from plots of different lengths. By F. L. Duley and F.G. Ackerman. Journal of Agricultural Research. v. 48, no. 6. March 15, 1934. p. 505-510. Summary: Soil erosion and surface run-off were measured on plots 10, 20, 40, and 100 feet in length, to determine effect of slope length on these processes. Measurements were made on two such sets of plots. Soil was silty clay loam, free from vegetation and loose organic matter, and was surface-cultivated. First set of plots had slope of 4 per cent, and second a slope of 4.4 per cent. To stimulate rainfall most of water was applied with sprinkling cans; in few cases natural rainfall was used. There was larger percentage of surface run-off from short plots than from long ones. This seemed to be true with both heavy and light applications of water for plot lengths under consideration. Results for soil erosion were less consistent. When rate of water application was light, there was tendency for erosion from short plots to run relatively high as compared with others. When rate of application was heavy, i.e., 1 inch in 15 minutes, erosion was greater on long plots.

Soil erosion being studied. By David C. Warner. Engineering Experiment Station News. Ohio State University. v. 6, no. 3. June, 1934. p. 22-23. Project on Salt Creek watershed in Muskingum Valley.

Soil management for Kentucky. By George Roberts. 1934. 59p. Kentucky College of Agriculture. Extension Division. Circular no. 272. Soil Erosion, p. 3-9.

To prevent soil drifting. Dakota-Farmer. v. 54, no. 11. May 26, 1934. p. 255. Plow deep furrows - 7 inches or deeper - 4 rods apart from east to west and from north to south across fields that are blowing. In very sandy soils furrows every two rods may be necessary. This system of cross furrows will form low windbreaks and cause soil to lodge before it moves far, in this way preventing it from piling up at sides of fields.

Evaporation.

Compilation and summary of evaporation records of Bureau of Plant Industry, U. S. Department of Agriculture, 1921-32. By Robert E. Horton and John S. Cole. Monthly Weather Bureau. v. 62, no. 3. March, 1934. p. 77-89.

Explosives.

Blasters' handbook describing practical methods o using explosives for various purposes. Wilmington, Delaware, E. I. du Pont de Nemours & Company, Inc., 1934. 264p.

Explosives. (Cont'd)

Blasting ditches with explosives for farm drainage construction of highways and control of water flow. Wilmington, Delaware, E. I. du Pont de Nemours and Co., 1934. 48p.

Extension.

Annual report, Rhode Island State College Extension Service, 1933. 1934. 46p. Rhode Island State College. Extension Service. Bulletin no. 64.

Farm Buildings and Equipment.

Figures lie; new buildings don't. Idaho Farmer. v. 52, no. 8. April 19, 1934. p. 3.

Handy farm incinerator. By Bill Monahan. New England Homestead. v. 107, no. 9. April 28, 1934. p. 16. By one not accustomed to laying brick very serviceable incinerator may be built in following manner: use wooden box about 3 feet by 1 1/2 feet by 1 1/2 feet upside down as form for base, first having laid foundation of stones. Then with cement and old bricks or cobble stones lay up side walls and one end, leaving other end open for fuel door and draft. Lay across top pieces of old furnace grating or stout wire bars. Set on top of this, as crematory chamber, old metal oil drum from which one end has been cut out. This drum should be set open end down and near closed end of base. Cement should then be plastered over that portion of top of box not covered by barrel and up around sides of barrel to hold it firmly in place. Hole about 12 inches square, or round, and fitted with cover, must be made in top of barrel to put in material to be incinerated and smaller hole for funnel may be required to get adequate draft. Ordinarily no funnel is needed if plenty of oil is used on fuel and some sticks are put into top along with material to be incinerated so that it will not pack too closely and prevent necessary draft.

Plans for hog house. Wisconsin Agriculturist and Farmer. v. 61, no. 10. May 26, 1934. p. 14. Gives plan.

Texas A-type hog house. By Fred Hale. Farm and Ranch. v. 53, no. 5. March 1, 1934. p. 15. Bill of material for A-type house. Diagram.

Farm Machinery and Equipment.

XIIIth exhibition of farm machinery. Paris. Monthly Bulletin of Agricultural Science and Practice. v. 25, no. 4. April, 1934. p. 183-184.

Field cultivator kills quack. By F. W. Duffee. Wisconsin Agriculturist and Farmer. v. 61, no. 10. May 26, 1934. p. 3, 7.

Hopper bait spreaders. By W.E. Mabee. Montana Farmer. v. 21, no.20. June 15, 1934. p. 7. Some suggestions for homemade devices.

Mower attachments to cut vetch. By Roy Bainer, E. A. Torpen and J.P. Fairbank. Implement Record. v. 31, no. 7. July, 1934. p. 5-7. Data, recommendations and suggestions presented are result of careful practical field tests and based on consultation with farmers as well as on original experiments and careful testing of various types of equipment under various harvesting conditions in all parts of central and northern California.

Those good old days. Would you like to go back? No. 3: Cultivators. Wisconsin Agriculturist and Farmer. v. 61, no. 10. May 26, 1934. p. 3.

Use and expense of farm implements. By Geo. B. Byers and B. T. Inman. 1933. 237-258p. Kentucky. Agricultural Experiment Station Bulletin no. 345. Presents description of use and analysis of expense of farm implements on 101 farms in southern Christian and Todd counties for farm year, 1930.

Use of moto-cultivation equipment in the colonies. Monthly Bulletin of Agricultural Science and Practice. v. 25, no. 4. April, 1934. p. 184-185. Fundamental advantages of tractor are:- (a) Ease with which it is handled. (b) Fewer demands in way of upkeep. (c) Its greater rapidity in preparing land for cultivation (c') and in performing annual routine processes. Among its disadvantages following should be mentioned:- (x) Lack of any utilizable by-products (notably manure). (y) Necessity for buying fuel outside farm. (z) Unsuitability for many types of cultivation and farm operations. Advantages a and b are chiefly responsible for popularity of tractor on small or medium sized farms managed directly by their owners. Advantage c is felt in newly developed countries, such as North Africa. Advantage c', on other hand, is felt primarily on large farms. Disadvantages x and y are particularly noticeable on small and medium sized farms, especially when number of different crops are grown. Disadvantage z eliminates tractor in many cases. By refusing to recognize this drawback number of costly errors have been committed, which are, fortunately, now sufficiently well known to be avoided in future. Moto-cultivation in Algeria and Tunisia. Farm machinery in Indo-China.

Farm Mechanics.

Saw filer must use care. By L. J. Smith. Oregon Farmer. v. 57, no. 12. June 14, 1934. p. 15. Shape of teeth and slope of cutting edge important.

Fertilizers.

Fertilizer for potatoes. By P. H. Wessels. American Potato Journal. v. 11, no. 3. March, 1934. p. 57-60.

Fertilizer mixtures with and without ground limestone for cotton. By J.T. Williamson. American Fertilizer. v. 80, no. 3. February 10, 1934. p. 5-6, 26.

Fertilizer placement studies on potatoes in Maine, 1932 and 1933. By Jos. A. Chucka. American Potato Journal. v. 11, no. 4. April, 1934. p. 92-95.

Fertilizer placement tests on cotton. American Fertilizer. v. 80, no.3. February 10, 1934. p. 13. Experiments were made in eight States, the Carolinas, Georgia, Mississippi, Arkansas, Louisiana, Texas and Oklahoma.

Molasses as a fertilizer. Sugar News. v. 14, no. 12 December, 1933. p. 618-619. Experiments were made on all kinds of soils, from light sand to heavy clay; numerous different methods of application were tried and effects of variations in time of application were studied. Summary of whole work.

Fertilizers. (Cont'd)

Use of limestone in mixed fertilizers. By J. W. Tidmore and C. F. Simmons. 1934. 8p. Alabama. Agricultural Experiment Station. Circular no. 67.

Fire Protection.

Cows, cigarettes and carelessness. By V. Ernest Field. American Lumberman. no. 3025. July 7, 1934. p. 36. Discussion of fire prevention.

Preventing farm fires by salting hay. Utah Farmer. v. 14, no. 22. June 25, 1934. p. 7.

Flax.

Flax production in Kansas. By I. K. Landon. 1934. 16p. Kansas. Agricultural Experiment Station. Circular no. 173.

Going for flax in a big way. Pacific Rural Press. v. 127, no. 21. May 24, 1934. p. 486. Imperial Valley at present time finds growers preparing to harvest some 11,000 acres of flax, and from all reports this harvest will amount to over 50,000 acres in 1935 if some control of this new "basic" crop does not interfere. Flax may be sown in fall in valley giving it long growing season; valley is only section in world where it is not dependent upon rainfall; due to mild winters superior Indian strains of flax can be grown; harvest in May with little chance of damaging rains; also slight chance of damage from disease as in more humid climates. Suitable harvesting machinery is one of greatest problems. Last year combine harvesters were used and from 15 to 25 per cent of yield was lost through unsatisfactory combining methods. This season majority of growers have decided to windrow first, then have it threshed by combine with pickup attachment. Ordinary combine is satisfactory for harvesting provided "wind" is reduced and machine is tight enough to prevent small seeds from leaking through cracks.

Floods and Flood Control.

Engineering activities of CCC camps in California. By E. W. Kramer. Civil Engineering. v. 4, no. 7. July, 1934. p. 335-339. Chief phases include bridge building, road construction, and control of floods and erosion.

Flood probability formula modified to simplify application. By C. R. Pettis. Engineering News-Record. v. 112, no. 25, June 21, 1934. p. 804-805. Method of determining probable 100-year floods based on width of drainage area and on rainfall statistics modified to improve it both practically and theoretically. Rainfall index for entire United States developed from runoff records.

Floods and their economic importance. By Gerard H. Matthes. Military Engineer. v. 26, no. 148. July-August, 1934. p. 265-268.

Improving Liao River. By Bunkichi Okazaki. Civil Engineering. v. 4, no. 7. July, 1934. p. 358-359. Manchurian stream diverted by a Stoney-Gate weir, and banks protected by mattresses.

Floods and Flood Control. (Cont'd)

Muskingum River construction conservation program begins in Eastern Ohio. by C. C. Chambers. Engineering News-Record. v. 112, no. 25. June 21, 1934. p. 799-801. Design studies started on series of fourteen dams, to cost $34,000,000 and some 1,850,000 acre-feet for $53,000,000 flood-control and conservation work in district covering 8,100 square miles.

Pittsburgh area inaugurates its flood-control program. Engineering News-Record. v. 113, no. 2. July 12, 1934. p. 48-50. Large masonry dam on Tygart River will regulate flow of Monongahela River, and lessen chances of future floods. Flood protection for Pittsburgh planned for 26 years.

Floors.

Announces new type of wood block flooring. American Lumberman. No. 3024. June 23, 1934. p. 37. Unit-Wood "Nail Block" makes possible use of design floors in homes, apartments and small areas which usually employ wood sub-floors. "Nail Block" can also be installed over old wood floors, and any good floor mechanic can handle the work.

Floor materials test. By J.R. Shank. Engineering Experiment Station News - Ohio State University. v. 6, no. 3. June, 1934. p. 13-16. Modification of Dorry procedure gives comparable and consistent results. Reports tests on sixteen different flooring materials.

Flow of Water.

Experiments with photoflow method of water measurement. By William M. White and William J. Rheingans. Canadian Engineer. v. 66, no. 19. May 8, 1934. p. 3-8. Description of apparatus and results obtained in series of tests conducted at Little Falls Pumping Station, Little Falls, New Jersey.

Fuels.

Coal classification by grade and rank completed. Power Plant Engineering. v. 38, no. 7. July, 1934. p. 334-335. Standardization sponsored by A.S.T.M.

Comparative cost of fuels for power plant use. By H. M. Faust. Power Plant Engineering. v. 38, no. 7. July, 1934. p. 332-333. Tells how to figure true cost of fuel.

Garages.

Practical two-car garage. Montana Farmer. v. 21, no. 19. June 1, 1934. p. 10. Diagram.

Hay.

Chopping hay saves new space, prevents waste. By R.C. Miller and E.A. Silver. The Furrow. v. 39, May-June, 1934. p. 3, 10. Fig. 1. Time and labor to store a ton of hay.

Hay. (Cont'd)

Hay curing: III. Relation of engineering principles and physiological factors. By T. N. Jones and L. O. Palmer. Agricultural Engineering. v. 15, no. 6. June, 1934. p. 198-201. Summary: Practice of windrowing alfalfa hay aids continuation of natural physiological process of transpiration, resulting in greater moisture loss for day's period. 2. Double windrowing two hours after cut furnishes hay with better color, larger percentage of leaves and lower moisture content at end of day. 3. Data indicate that leaf of alfalfa plants aid greatly in lowering moisture content of entire plant. 4. Photomicrographs showed reopening of stomata following windrowing two hours after cut. 5. Process of crushing large-stemmed hays such as Johnson grass and soybeans will permit needed change in methods and time required in curing.

Heat Conduction.

Note on the theory of heat conduction. By M. S. Van Dusen. 1930. 753-756p. U. S. Bureau of Standards. Research paper no. 178.

Heating.

Control methods for domestic conversion gas burners. By L. C. Price. 1934. 19p. Arkansas. Engineering Experiment Station. Bulletin no.12.

Factors affecting heat output of convectors. By A. P. Kratz, M. K. Fahnestock and E. L. Broderick. Heating, Piping and Air Conditioning. v. 6, no. 7. July, 1934. p. 307-314. Result of research conducted at University of Illinois in cooperation with Research Laboratory of American Society of Heating and Ventilating Engineers.

"Heat bouncer" of aluminum fits behind radiators. Popular Mechanics. v. 61, no. 3. March, 1934. p. 323. Much of heat from home radiators which is lost through absorption by walls can now be saved by fitting radiators with "heat bouncers," thin aluminum sheets fitting behind radiators and reflecting heat out into room. It has been estimated that twenty-five per cent of heat thrown off by radiator is wasted by wall absorption. No special mounting is needed for installation, curved metal sheet slipping between radiator and wall.

Mechanical equivalent of heat - its rise and fall. By Eric Therkelsen. Mechanical Engineering. v. 56, no. 6. June 1934. p. 347-349.

Horses.

Horse is coming back. Oregon Farmer. v. 57, no. 10. May 17, 1934. p. 6. Steady decline in number of farm draft animals from 1920 to 1932 has left us, as of January 1, 1933, with only 12,163,000 horses and 4,981,000 mules on farms, whereas about right number to do work required and consume cereals raised and keep harness maker in bread and butter is 20,000,000. While we are definitely getting back to horses and mules for farm power, it will take 10 years to get back where we should be even if we could increase our annual colt crop to 1,500,000, number necessary to replace losses and start rebuilding; and this is beyond realm of probability. Horses are only farm-raised commodity now selling for more than in peak prosperity period of 1925 to 1929.

Horses. (Cont'd)

Horse shortage favors tractors. Northwest Farm Equipment Journal. v. 48, no. 6. June, 1934. p. 24. Number of horse and mule colts in United States in 1932 was only one-third number in 1919 - 531,000 as compared with 1,588,000. 1932 number was probably increased in 1933, as there was substantial increase that year in number of registered stallions in states requiring registration. As there were estimated to be about 17,000,000 horses and mules on farms in 1932, it is easy to see that rate of reproduction at that time was not sufficient to keep up supply. Two predictions appear to be safe in present situation. First, increased demand will bring about increase, perhaps only temporary, in breeding of farm mares to produce colts both for use and for sale. Secondly, relative scarcity of horses will raise price to point where comparison of first cost as between horses and tractors will be more and more in favor of tractors, providing tractor prices can be maintained at approximately their present level.

Reports horseless farms more profitable. Farm and Ranch. v. 53, no.5. March 1, 1934. p. 12. According to 1932 annual report of Purdue Experiment Station, at least twenty-two Indiana farmers owned no horses in 1931. Sizes of farms they operated ranged from 67 to 325 acres, averaging 191 acres. Financial records kept by ten of these farmers showed their average labor income in 1931 to be $680. which was better than average of all Indiana farms on which Farm Management Department had records for 1931.

Study of horses on farm account keeping farms in Michigan. By A. M. Hauke. Michigan Agricultural Experiment Station Quarterly Bulletin. v. 16, no. 4. May, 1934. p. 224-230.

Hotbeds.

Soil heating by buried electric cables. Rural Electrification and Electro-Farming. v. 10, no. 109. June, 1934. p. 24.

Houses.

Congress provides for financing home building and modernizing. American Lumberman. no. 3024. June 23, 1934. p. 18-19, 43.

Figures showing housing conditions now available for two thirds of cities covered. Domestic Commerce. v. 13, no. 15. June 20, 1934. p. 172-175.

Georgian Colonial house. Architectural Forum. v. 60, no. 1. January, 1934. p. 49-64.

Inexpensive home of metal built of factory units. Popular Mechanics. v. 61, no. 3. March, 1934. p. 336. Exterior siding is sixteen gauge ingot iron formed in trough-shaped section to give rigidity and load-carrying ability. Frameless "double-strength" method of construction is used. Exterior is sprayed with enamel paint. Floors and roof are of cellular construction of sheet steel. These units are assembled on job, although floors may be factory-assembled. Window sash, frames and bucks are of steel. Doors and trim are pine. Gypsum board is used as sub-floor over steel, while finished floors are hardwood in all rooms but bath where mosaic tiles are used.

Houses. (Cont'd)

Look at the farm house. By Louise Stanley. Extension Service Review. v. 5, no. 5. May, 1934. p. 65-66. Account of Farm Housing Survey.

Master detail series. Architectural Forum. v. 59, no. 5. November, 1933. p. 347-418. New England farmhouse. One-story Colonial house. English half-timber house. Modern house.

Meet us at the Fair. Country Home. v. 58, no. 7. July, 1934. p. 18-19, 42-43. Country Home presents model modern farmhouse.

Modern farm homes for California. By J. D. Long. Pacific Rural Press. v. 127, no. 17. April 28, 1934. p. 390-391.

New-fashioned Colonial house. By Charles E. Seitz. Progressive Farmer. v. 49, no. 6. June, 1934. p. 27. Provides for minimum needs of family, and may be added to as years go by and need arises for increased space.

Pent up demand for farm home repairs and new equipment indicated. Domestic Commerce. v. 14, no. 1. July 10, 1934. p. 7. Contained in limited survey recently made by "The Farmer" (St. Paul, Minn.) in States of Minnesota, North and South Dakota, which showed that nearly three-fourths of farmers have plans for repairing or improving farm structures, while two-thirds of them plan to add new field equipment as their income improves. Purchases of automobiles are planned by 14.6 per cent, tractors by 8.1 per cent, and trucks by 4.1 per cent. Half of farmers said they also plan to add to general equipment of farm, such as wind-mill or arrangements for electric lighting. This survey shows percentage of farmers reporting that were considering each of wide variety of improvements and new purchases, to each of farm buildings and for each of equipment needs. It was made in fall of 1933, and reflects farmers' plans at that time.

Tells of farm housing and repair needs. American Lumberman. no. 3024. June 23, 1934. p. 37. Bird's-eye view of farm housing situation as disclosed in recent housing survey made by U.S. Department of Agriculture in 352 counties in 46 States, was given to members of American Society of Agricultural Engineers at annual meeting by Wallace Ashby.

Two small houses, concrete and frame. Farm Journal. v. 58, no. 7. July, 1934. p. 10. One fireproof, other elastic and both low-cost.

World's Fair homes impress visitors with merits of brick. Brick and Clay Record. v. 84, no. 6. June, 1934. p. 200-201. Exhibit strength of reinforced brick masonry. Face brick slab construction. Economy of steel framing and brick, and new kind of brick.

Houses, Remodeling.

New houses and other buildings from old. 1933. 71p. Supplement to Architectural Forum, November, 1933.

Hydraulics.

Current hydraulic laboratory research in the United States. July 1, 1934. 1934. 70p. mimeographed. U. S. National Bureau of Standards.

Hydraulics. (Cont'd)

Hydraulic rams. New England Homestead. v. 107, no. 8. April 14, 1934. p. 10.

Practical Hydraulics. By P. S. Wilson. Water Works and Sewerage. v. 81, no. 6. June, 1934. p. 216-217. II. The end contractions of a weir.

Russia creates great laboratory for hydraulic research. By I. Gutmann. Engineering News-Record. v. 112, no. 24. June 14, 1934. p. 761-766. Eleven existing and nine newly created hydraulic research laboratories centralized and coordinated in Scientific Research Institute of Hydrotechnics with great central laboratory at Leningrad.

Income.

Earning ability of farmers who have received vocational training. 1933. 44p. Federal Board for Vocational Education. Bulletin no. 167. Comparison of earnings of former vocational students now farming with earnings of equivalent group in farming who did not receive vocational training.

Insect Control.

Mechanical methods aid control of insect pests. Farm Implement News. v. 55, no. 13. June 21, 1934. p. 13. Discussion of aid which agricultural engineers may give to entomologists and pathologists.

Insulation

Aluminum foil for insulation. By John Hancock Callender. Architectural Forum. v. 60, no. 1. January, 1934. p. 67-71. Advantages: Properly designed aluminum foil insulation is comparable in efficiency to best insulating materials known; it is also comparable in cost. Its most striking advantage is its extremely low weight as compared with other good insulators. Disadvantages: Some authorities have questioned permanence of reflective surface upon which insulating qualities of aluminum depend. Since no figures from thoroughly disinterested source are available, and material is still so new, it is difficult to say positively that this charge is untrue. However, several engineers of high standing in their profession have stated that loss of reflectivity is so slight as to be negligible. Disadvantage which is apparently inherent in material due to its extreme thinness is difficulty in handling. To avoid tearing considerable care is required to crumple, stretch out, cut, and nail in place large sheets of foil. This difficulty is, of course, overcome when foil is backed by Kraft paper or stronger material.

Appliance safety in adequately cured cement. By R. L. Melton, K.W. Brownell and G. J. Easter. Electrical World. v. 103, no. 24. June 16, 1934. p. 874-877. Description of study of effect of vitrification on insulation and safety of household appliances.

Irrigation.

Conserving moisture in orchard. By Francis M. Coe. Utah Farmer. v. 14, no. 22. June 25, 1934. p. 3. Because of thorough exploitation of soil by tree roots, object in irrigating orchards should be to wet all of soil uniformly to depth of five or six feet so as to store

as much moisture in soil for use of trees as possible. Best insurance against declining water supply is reserve supply stored in subsoil. It is unnecessary to apply water in pocket about trunk of trees, and it is wasteful to run water once or twice a week in one or two furrows close to tree trunks allowing centers of rows to go dry. With this system much of precious water is lost by deep percolation. In spite of limited water supply, many orchards are still in grass, alfalfa, or sweet clover sod, or allowed to grow up to weeds. Heavy stand of weeds or cover crop will evaporate as much water from soil as trees, and so cut water supply available to trees in half. Such sod or weeds should be watered to soften ground and then plowed or disked up. In spite of careful cultivation and irrigation, there may be many cases where water supply will be insufficient to support trees, keep them in good condition, and mature crop of salable size. In such cases summer pruning to reduce amount of foliage, and hence evaporation and demand for water on part of trees may be useful.

Consumptive use of water by native plants growing in moist areas. By Henry F. Blaney. California Cultivator. v. 81, no. 10. May 12, 1934. p. 237, 259. Investigations in Southern California lead to conclusions that (1) there will be no evaporation in light-textured soils when water table is four feet below ground surface, and very little when it is as low as two feet; (2) in general, evaporation from cultivated soils is small, and of little importance in comparison with amounts transpired by crops and weeds; (3) salt grass and Bermuda grass use about same amount of water as cultivated crops grown under similar conditions; (4) although use of water by tules or cat-tails in tanks in exposed locations is not necessarily indicative of use by such plants growing in their natural environment, these plants often occupy relatively narrow strips along borders of canals and reservoirs, and there they may use as much as 12 to 15 acre-feet per acre per season; (5) wire-rush growths use more water than either wild grasses or willows where there is high water table.

Duty of Water. By Asa C. Maxson. Through the Leaves. v. 22, no.4. July, 1934. p. 104-107. No cut and dried rule can be given for irrigating any particular season or any given field. Irrigator must take general principles and adapt them to his particular conditions.

How deep do you irrigate? Pacific Rural Press. v. 127, no. 13. March 31, 1934. p. 300.

Irrigating with contour checks. By J. H. Currie. Pacific Rural Press, v, 127, no. 13. March 31, 1934. p. 287, 294. Advantages: 1. Less earthwork or building of levees. 2. Less labor required. 3. More rapid irrigation. 4. Good, even distribution. It has slight disadvantage of tendency to puddle soil if it is of heavier type.

Irrigation costs. Diesel Digest. v. 1, no. 3. June, 1934. p. 9. Table showing result of Government tests on quantity of water required for irrigation; local conditions of course vary and this table has been compiled from a comparison of various sections.

Irrigation horridscope. Pacific Rural Press. v. 127, no. 13. March 31, 1934. p. 301.

Irrigation. (Cont'd)

Little experience with porous hose. Market Growers Journal. v. 55, no. 1. July 1, 1934. p. 243.

Making an irrigating system out of odds and ends. By Lee A. Somers. Market Growers Journal. v. 55, no. 1. July, 1934. p. 244. Old centrifugal pump from an abandoned coal mine was secured. Old Chrysler automobile engine came from junk pile. Several hundred feet of 3-iron pipe without thread and with broken thread were borrowed. Another visit to junk yard produced quantity of old inner tubes. These were cut into four-inch strips. Ends of two pieces of iron pipe were butted together as closely as possible. Then strip of inner tube was wrapped tightly around junction and pieces of baling wire were wrapped tightly around junction connection. Old canvas hose was brought into play, and plot of strawberries near gravel pit was irrigated.

Newer knowledge of water. Pacific Rural Press. v. 127, no. 13. March 31, 1934. p. 292. Job in irrigating is to replenish film water when needed, and then stop. Trying to store water in your soil against day of need is not practical except to extent of moisture you may wrap around soil particles as film. Another thing is that most of feeding done by roots is in top soil, most of it is in top foot, and preponderance in top two feet.

Porous hose may be useful in irrigation. Oregon Farmer. v. 57, no. 10. May 17, 1934. p. 10. One of new developments is porous canvas hose which carries water from iron pipe at edge of field down rows to be irrigated, or where lawn or irregular piece of ground is to be watered, may be attached to faucet or pump. When water is turned on, hose fills. When slight pressure is built up, about four pounds per square inch, water begins to ooze through fabric and into ground, amount of percolation depending on lay of land and distance from pipe line. In field with gentle slope downward, piece of this hose 100 feet long will take all water 2000-gallon pump will deliver. If 400 to 600 feet are attached to same pump, smaller amount of water per foot of length is delivered. Advantages claimed for this method are that it adapts itself to any water supply and to any condition of terrain, that it can be moved from place to place with greatest ease, and that it puts all of water into ground directly at roots of plants with virtually no loss by evaporation and no danger of washing.

Studies of irrigation methods for sugar beets in northern Colorado. By H. E. Brewbaker. Journal of American Society of Agronomy. v. 26, no. 3. March, 1934. p. 222-231.

Water penetration in hardpan citrus soils. By Colin A. Taylor. Agricultural Engineering. v. 15, no. 6. June, 1934. p. 202-203.

Land.

Marginal land has its uses. By T. C. Richardson. Farm and Ranch. v. 53, no. 5. March 1, 1934. p. 20.

Land. (Cont'd)

Utilization of El Dorado County land. By David Weeks, A.E. Wieslander and C. L. Hill. 1934. 115p. California. Agricultural Experiment Station. Bulletin no. 572. Report of results of first large-scale study, in California, of land utilization and of complex problems arising out of its relation to economic and social structure.

Lighting.

Agricultural lighting symposium. American Society of Agricultural Engineers, 1934. 20p. Multigraphed. Electric lighting and its application to rural areas; Insect control with light; Radiation in the home and in the animal and poultry industries; Growing house plants with artificial light; Light for plant growth.

How to light your home. By D. W. Atwater. Popular Mechanics. v. 61, no. 3. March, 1934. p. 408-412.

Lubrication.

First 10,000 revolutions are worst. By Evan A. Hardy. Farm Implement News. v. 55, no. 13. June 21, 1934. p. 22-23. Tests indicate need for top oiling of cylinder, and that used oil is still usable.

Lubrication of shovels, cranes, and draglines: Fifth of a series of articles on an important phase of the maintenance of construction equipment. Contractors and Engineers Monthly. v. 28, no. 5. May, 1934. p. 26-28.

Oil up the farm machinery. Farm and Ranch. v. 53, no. 5. March 1, 1934. p. 23. To obtain most work and keep work horses in best condition, every bearing on machines should fit reasonably tight and be positively lubricated. All moving parts should be properly aligned and have unobstructed movement.

Textile machinery. Lubrication. v. 20, no. 6. June, 1934. p. 61-72. Improvements in design and methods of lubrication.

Meters.

Ten foot Parshall measuring flume at Providence. By Charles G. Richardson. Journal of New England Water Works Association. v. 46, no. 1. March, 1934. p. 1-5.

Miscellaneous.

Recent trends in the rural population of Ohio. By P. G. Beck. 1934. 41p. Ohio Agricultural Experiment Station. Bulletin no. 533.

Report on the agricultural experiment stations, 1933. By J. T. Jardine and W. H. Beal. 1934. 78p. U.S. Department of Agriculture.

Standard symbols and abbreviations - an ideal. Civil Engineering. v. 4, no. 7. July, 1934. p. 375-377. Adopted for use in Society publications.

Mississippi River.

Bank-revetment developments on the Mississippi River. I. Asphalt mat revetment. Engineering News-Record. v. 112, no. 26. June 28, 1934. p. 825-830. Field application stage reached in development of two new types of revetment. Special plant for fabricating sheet-asphalt mats completed in New Orleans district.

Bank-revetment developments on the Mississippi River. II- Tetrahedron-block revetment. Engineering News-Record. v. 113, no. 1. July 5, 1934. p. 5-8. Field-application stage reached in development of two new types of bank revetment. Tetrahedral-shaped concrete blocks over gravel mat being tried in Memphis and Vicksburg districts. Unique plant developed for their manufacture.

Stages of the Mississippi River and of its principal tributaries for 1932. 1934. 99p. U.S. Mississippi River Commission, Vicksburg, Miss.

Models.

Models as aids in design and construction. Engineering News-Record. v. 112, no. 26. June 28, 1934. p. 843-846. Reviews rapidly expanding art in fields of structures and hydraulics and introduces some new developments.

Saving money through a design model. By W. J. Richard. Electrical World. v. 103, no. 24. June 16, 1934. p. 865-866.

Motors.

Electric motors on the farm. Rural Electrification and Electro-Farming. v. 10, no. 109. June, 1934. p. 16-20. Survey of many of applications of electric motors to agriculture. Portable motors available from fractional to 15 h.p.

How to select the motor for the job. By George H. Hall. Electrical World. v. 103, no. 24. June 16, 1934. p. 880-884. First aid for industrial engineer who would match equipment available against duty to be performed.

Potatoes.

Potato costs in Michigan in 1933. By P. F. Aylesworth. Michigan Agricultural Experiment Station Quarterly Bulletin. v. 16, no. 4. May, 1934. p. 219-224. High yield producers had a 40 per cent lower cost per bushel then low yield group.

Poultry Houses and Equipment.

Comparison of electric and coal brooders in production of winter broilers. Preliminary Report. By J. M. Moore and H. J. Gallagher. Michigan Agricultural Experiment Station Quarterly Bulletin. v. 16, no. 4. May, 1934. p. 266-278. Objects of experiment were to determine operating characteristics of electric brooder versus hard coal brooder under similar conditions. Factors under observation were: 1. Cost of operation unit. 2. Humidity. 3. Ventilation. 4. Insulation. 5. Effect on chicks.

Poultry Houses and Equipment. (Cont'd)

For housing pullets on a range, use range shelter. By J. H. Florea. Building Material Digest. v. 3, no. 6. June, 1934. p. 13.

Poultry feed bin. Montana Farmer. v. 21, no. 19. June 1, 1934. p. 11. Diagram.

Small poultry house has several uses. Washington Farmer. v. 69, no. 12. June 14, 1934. p. 8. While portable colony brooder house, 12 feet by 16 feet was designed primarily for brooding purposes, it is excellently adapted for use as small backyard laying house. House may be constructed to remain stationary, and is of minimum dimensions so it will be easy to keep warm. This low-cost building will house from 45 to 50 laying hens, depending on size of birds. Front of house should face south, and yard should be located on south side of house. Door opens on side and near front. It is advisable to have this door on side of house protected from weather. For colder parts of state, rear of house and sides should be sealed. Tar paper should be tacked to outside of studding before nailing on siding. House may be constructed with 2½-inch concrete floor, or wooden floor made with layer of diagonal shiplap covered with tar paper and followed with one-inch by four-inch flooring. This flooring should not be nailed too tightly as it will swell after becoming damp. After working layer of floor has been nailed in place, it should be covered with two coats of creosote.

What kind of hen house? By Hobarrt Beresford and C. E. Lampman. Idaho Farmer. v. 52, no. 8. April 19, 1934. p. 8, 13. Cross-section view of construction of gable ceiling insulated poultry house.

Power.

Story of power. By E. J. Tangerman. Power. v. 78, no. 6. June, 1934. p. 281-308.

Public Works.

Progress made by PWA in first year of its life. By Irvin Foos. Engineering News-Record. v. 112, no. 25. June 21, 1934. p. 796-799. One-third of three billion dollar public-works fund distributed, and whole fund allocated. Rapid increase in work on non-federal projects since January of this year.

P W A in action. Architectural Forum. v. 59, no. 5. November, 1933. p. 339-344.

Pumps.

Humphrey gas pump. By F. du P. Thomson. Mechanical Engineering. v. 56 no. 6. June, 1934. p. 337-340. Review of development and present status of device for pumping water by displacement.

Is your pump 50% efficient? Pacific Rural Press. v. 127, no. 13. March 31, 1934. p. 295.

Low cost pumping with Diesel engines. Diesel Digest. v. 1, no. 3. June, 1934. p. 8, 18.

Pumps. (Cont'd)

Pumping from wells for irrigation. By Paul A. Ewing. 1934. 29p. U.S. Department of Agriculture. Farmers' Bulletin no. 1404.

Saved by pumps. Arizona Producer. v. 13, no. 8. July 1, 1934. p. 16. Little water in Salt River reservoirs but valley will get by in good shape. As a whole the valley's condition is much better than that of almost any other agricultural district in this drouth year.

Rain and Rainfall.

Rainfall record demands thrift. By John E. Pickett. Pacific Rural Press. v. 127, no. 13. March 31, 1934. p. 287. Table gives California rainfall 1897-1933.

Reclamation.

Reclamation engineer found Verde storage essential to future of Salt River Valley. Arizona Producer. v. 13, no. 7. June 15, 1934. p. 10-11. Material designed to present few of more important aspects of stand taken by Water Users in Verde controversy, prepared under direction of Publicity Committee from Board of Governors.

Retrogression experience in Wisconsin and Europe. Engineering News-Record. v. 112, no. 26. June 28, 1934. p. 838. Continuous records are needed in study of retrogression. By L. F. Harza. Experience with bed degradation below dams on European Rivers. By Samuel Shulits. Load-Recovery theory applied to Yellow River flood control. By Arthur M. Shaw.

Retrogression of levels in riverbeds below dams. By E. W. Lane. Engineering News-Record. v. 112, no. 26. June 28, 1934. p. 836-838. Studies undertaken by U. S. Bureau of Reclamation to determine possible effect of phenomena of retrogression of bed levels below dams upon design of power plant at Boulder Dam are outlined.

Santa Clara Valley water project. California Cultivator. v. 81, no.12. June 9, 1934. p. 315. Water levels have been dropping each year until at present time, it is estimated that people of valley are having to pay at least $800,000 a year more for power bills than they would if water were at same level it was in 1915. Sad part of it all is that this shortage is not due to insufficient rainfall, but rather to fact that only some 38 per cent of average annual run-off of 202,535 acre-feet under natural conditions is absorbed by underground gravel beds. Practical experiments have demonstrated conclusively that much of this water that wastes into bay during heavy rain storms can be saved by flood control reservoirs and spreading dams that permit water being fed into gravel beds as they can absorb it or spread over wide area instead of permitting it to race down single narrow channel to bay. People of district are being asked to approve bond issue on June 19, of some $2,000,000 with which to install conservation project. Federal Government has indicated it will make district outright gift of some $683,000 or 30 per cent of $2,683,000 project is expected to cost, and in addition will buy $2,000,000 worth of bonds, thus assuring early start on project. Bonds are to run for period of 25 years at four per cent interest,

Reclamation. (Cont'd)

and cost to taxpayers is estimated at around 30 cents a year for each $100 of assessed land value.

Refrigeration.

California cooler. Pacific Rural Press. v. 127, no. 19. May 12, 1934. p. 438. Diagram.

Cleaner and colder. By Andrew Appleby. Electricity on the Farm. v. 7, no. 7. July, 1934. p. 7-9.

Determination of storage conditions. By P. K. Bates and M. E. Highlands. Refrigerating Engineering. v. 27, no. 6. June, 1934. p. 299-302, 321-322. Calls attention to wastes incurred by ignorance of food technology on part of designers of refrigerating systems, maintaining there is wide range where conditions of practice may be improved at profit ample to pay for research. New methods of determining actual behavior of meat under various conditions are discussed. Doubts whether idea of single set of optimum conditions is sound. Presents sample data indicating what his method will accomplish.

Food van cooled with "dry ice". Popular Mechanics. v. 61, no. 3. March, 1934. p. 336. Refrigerant is loaded into receptacles through van roof after truck has been filled with freight and air-tight main door sealed. As solid carbon dioxide is converted to gas, van is cooled in same manner that container of ice cream is kept frozen with Dry Ice.

Repairs and Repairing.

Successful renovizing campaign - its set-up, progress and results. American Lumberman. no. 3025. July 7, 1934. p. 20-21.

Research.

No conflict between research and crop cuts. By Henry A. Wallace. Utah Farmer. v. 14, no. 22. June 25, 1934. p. 3.

Summary of research, 1887-1933. Forty-fifth annual report. 1934. 126p. Arkansas. Agricultural Experiment Station. Bulletin no. 297.

Roofs.

Flow in roof gutters. By K. Hilding Beij. 1934. 193-213p. U. S. Bureau of Standards. Research Paper no. 644.

Reinforced concrete shell roof construction on modern dairy barn. Agricultural Engineering. v. 15, no. 6. June, 1934. p. 201.

Rope.

Wire rope life shortened by extended idleness. By Frank W. Benis. Engineering News-Record. v. 112, no. 26. June 28, 1934. p. 840.

Rubber.

New uses for rubber found in many industries. Popular Mechanics. v.61, no. 3. March, 1934. p. 344. Among more recently developed applica-

cations is elastic thread. Textile industry is making use of latex for impregnation and waterproofing of cloth. Latex solutions are also being substituted for rubber cement in preparing dipped goods, and carpet and rug manufacturers are using solutions on back of rugs to prevent slipping, while pile fabrics, like automobile upholstery, are also backed with latex. Paper industry is using solutions in making grease and waterproof coatings for paper and paper board, waterproof bags and inexpensive raincoats of latex-treated paper, umbrellas prepared in similar manner, and baggage tags. In cordage industry latex is employed in waterproofing different types of twine and ropes for fish nets, fishing lines and laundry bags. It is even used to impregnate Manila rope employed in non-skid tire chain. Artificial leathers have been made for several years by impregnating special types of paper with latex solutions and embossing surface to give leather effect. Brake linings, asbestos tapes and even asbestos sheets are being treated with latex, and it is being substituted for glue solution previously used in making molds in which to cast objects of art.

Run-off.

Estimating run-off capacities of watersheds. Public Works. v. 65, no.3. March, 1934. p. 13-14.

Septic Tanks.

Septic tanks for farm homes. By E. L. Stanley. Pacific Coast Rural Press. v. 127, no. 16. April 21, 1934. p. 371. Satisfactory and economical method for most rural homes.

Sewage and Sewage Disposal.

Effect of bottom ventilation on purification by an experimental trickling filter. By Max Levine and H. E. Goresline. 1934. 16p. Iowa Engineering Experiment Station. Bulletin no. 116.

Silos.

My 80-ton trench silo. By Joe Sarzin. Montana Farmer. v. 21, no. 20. June 15, 1934. p. 5.

Soils.

Soil dynamics: VI. Physical reactions of soils to moldboard surfaces. By M. L. Nichols and I.F. Reed. Agricultural Engineering. v. 15, no.6. June, 1934. p. 187-190. General effect of physical conditions on reactions. Method of study. General nature of reactions. Summary.

Specifications.

Specifications and tests reviewed by A.S.T.M.- II. Engineering News-Record. v. 113, no. 2. July 12, 1934. p. 51-54. Important developments recorded in cement and concrete, brick, bituminous materials, lime and soils.

Spraying and Dusting.

Unloading characteristics of orchard sprayer pressure regulators. By K. R. Frost. Agricultural Engineering. v. 15, no. 6. June, 1934. p. 191-193, 197. Conclusions: 1. Factors affecting unloading characteristics of standard pressure regulator are (a) spring constant, (b) area of diaphragm or piston and valve seat, (c) valve stem clearance, and (d) total length of spring. 2. Velocity of liquid through by-pass valve is sufficient, in some cases, to cause back pressure on pump, thus pre-

Spraying and Dusting. (Cont'd)

venting regulator from unloading. 3. Power unit can be unloaded to one-fifth of power required to operate spray line (a) if regulator is in good mechanical repair, (b) if spring is used that can be compressed large amount, (c) if area of diaphragm or piston is not more than five times area of by-pass valve seat, and (d) if valve-stem clearance is set properly. 4. Relief-valve type of regulator is good pressure-control device, but increases horsepower instead of unloading power unit. 6. Check valve in standard-type regulator must prevent liquid from leaking, in order to unload pressure unit.

Standards of Living.

Farm versus village living in Utah. By Joseph A. Geddes. 1934. 70p. Utah. Agricultural Experiment Station. Bulletin no. 249. Part I-Conditioning factors. Part II- Housing conditions.

Storage Houses.

New potato storage house. New England Homestead. v. 107, no. 10. May 12, 1934. p. 6. Proposed new type of insulated trackside potato storage building, conical in shape to get greatest storage space per unit of exposed surface, and with minimum of openings for leakage of air was described by A. D. Edgar, of Federal Bureau of Agricultural Engineering. Buildings will have intake and outtake ventilators, and will be insulated so that temperatures and humidities can be easily controlled. Cost of construction and equipment of new type buildings should not be more per barrel than for types of storage houses now in vogue. Insulation will be comparable in amount to that used in cold storage warehouses, and will conserve heat normally present in potatoes so that very little heating of houses will be required. It should also increase fire resistance of buildings. New structures also provide for easier handling of potatoes.

Subsistence Homestead.

Good homes for needy people. By Michael Kennedy. Montana Farmer. v. 21, no. 19. June 1, 1934. p. 3, 16. That's aim in rural rehabilitation.

Planning a subsistence homestead. By Walter W. Wilcox. 1934. 20p. U.S. Department of Agriculture. Farmers' Bulletin no. 1733.

Subsistence homesteads. Pacific Rural Press. v. 127, no. 16. April 21, 1934.

Sugar Beets.

Michigan sugar beet costs in 1933. By K.T. Wright. Michigan Agricultural Experiment Station Quarterly Bulletin. v. 16, no. 4. May, 1934. p. 215-219. Good practices reduce cost per ton 35 per cent.

Tennessee Valley Authority.

Tennessee Valley project. By Walker Stansell, Jr. Explosives Engineer. v. 12, no. 6. June, 1934. p. 169-176. Brief sketch of purposes and accomplishments of T.V.A. and few details of its work at Norris dam.

Terracing.

Land terracing in New Mexico. Western Farm Life. v. 36, no. 5. May 15, 1934. p. 12. Farmers are learning that as they take acreages out of production they should prepare remaining acreages more carefully as well as protect non-cropped areas from weeds, erosion and depletion. Terraced and contoured land is fully protected from water erosion and does not blow as badly as other lands. When put into a permanent crop of grass or legumes, it improves.

Tires.

Air tires take Pacific Coast farming on first bounce. By F. Hal Higgins. Farm Implement News. v. 55, no. 13. June 21, 1934. p. 20-22.

Farmers now calling for rubber. Implement and Tractor Trade Journal. v.49, no. 14. July 14, 1934. p. 9, 18.

Pneumatic tire equipment for farm use. By E. C. Sauve. Michigan Agricultural Experiment Station Quarterly Bulletin. v. 16, no. 4. May, 1934. p. 278-281. Few of more important findings are: 1. Tractors equipped with rubber tires provide decreased rolling resistance amounting to approximately 50 per cent of that of steel wheels under average farm conditions. 2. Rubber tires on tractors absorbed some of shocks due to vibration and made riding more comfortable for operator. 3. Tractors on pneumatic tires generally consumed less fuel than with steel wheel equipment. 4. Rubber tires caused much less dust to be stirred up in dry fields, thus tending to increase life of tractor. 5. No definite information is available on tractor life as result of pneumatic tire use. 6. Under most conditions of farm use, tractors with steel wheels and spade lugs gave better traction with more drawbar pull than could be obtained with rubber tired equipment without lugs. 7. More power is available for drawbar work when tractors are equipped with pneumatic tires. 8. Tractors equipped with rubber tires are not restricted in use of hard surfaced highways. 9. Life of rubber tires for farm tractor use is problematical, but based on approximately two years of actual use it appears that several years additional use will be possible.

Proper tire combinations for 1 1/2 ton trucks. Contractors and Engineers Monthly. v. 28, no. 5. May, 1934. p. 31-33. Increase in use of smaller trucks due to adverse legislation increases tire problem.

Rubber tires increase versatility. Farm Machinery and Equipment. no. 1806. June 15, 1934. p. 5-7. More extensive use of tractors lowers hourly cost. Savings pay for new equipment. Greater mobility enlarges field of opportunity.

Rubber tires pay their way. Farm Machinery and Equipment. no. 1805. May 15, 1934. p. 12-13. By increasing power at less cost rubber tires help to achieve this thirty-year goal of tractor builders.

Rubber tires prove case in first Nebraska test. Implement and Tractor Trade Journal. v. 49, no. 13. June 30, 1934. p. 12. Allis-Chalmers "WC" makes remarkable showing in fourth gear, developing seven Hp. more than permissible drawbar rating, based on steel wheel performance.

Synthethic rubber tires. National Petroleum News. v. 26, no. 26. June 27, 1934. p. 20-F. Announced by duPont Co., and Dayton Rubber Mfg. Co. Made of Acetylene, salt and water. Costs about $1.00 a pound.

Tractors.

New horse of modern farm. By Harvey S. Firestone, Jr. Farm Machinery and Equipment. No. 1806. June 15, 1934. p. 7, 22. Summary of development of modern tractor.

Tractors for the garden. New England Homestead. v. 107, no. 10. May 12, 1934. p. 8. Three types are available from which commercial vegetable grower can make selection.

Twine.

Story of twine. Chicago. International Harvester Company, Inc., 1924. 32p.